



NOAA Teachers at Sea
Vince Rosato and Kimberly Pratt
Onboard NOAA Ship RONALD H. BROWN
March 9 - 28, 2006

Log 6

Ship Log #6

March 22, 2006

Middle of the Atlantic Ocean

For the past few days, we've been transiting back and forth picking up (recovering) and launching (deploying) a special kind of buoy called an Inverted Echo Sounder (IES). This buoy is attached to a weight and sinks to the bottom of the ocean. There it sends out a sound pulse to the surface and measures the travel time of that pulse to hit the surface and return to the unit on the bottom of the



The IES buoy at night.

When scientists are ready to get the information from the buoy, they travel to the site of the buoy, and park the ship right on top of it, and the buoy sends the information to them.

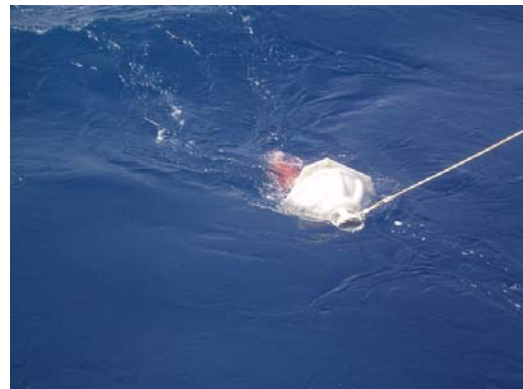
The buoys stay down in the bottom of the ocean sometimes as long as 6 to 7 years but usually they're picked up after 5 years. They cost between \$25,000 and \$45,000 each!

When scientists are ready to pick up the buoy, they send a signal that tells the buoy to detach from the weight holding it down and then it floats to the surface attached to a large yellow float. At night, it sends a strobe light flashing across the water so it can be easily found.



ocean. Using the travel time of the sound, scientists use it with a historical profile of the water to estimate temperature and salinity of the water. They obtain the historical profile by doing repeated CTD casts and especially the cast before deploying the IES. Sound speed is proportional to salinity/density and scientists use the density and temperature estimations to identify water mass and current movement. Remember, these currents are moving all over the world! The

buoy we deployed also had a current sensor as well as a pressure and temperature sensor.



The IES buoy deployed!

Also in the past week, all the Styrofoam cups that have been decorated by students at Cabello, Searles Elementary, Key Biscayne Community School, and members of the crew of the RON BROWN were lowered into the ocean at about 5000 meters, or a little more than 3 miles below sea level. The effect of pressure can be as great as 70,500 pounds of pressure! This



pressure crushes the cups and gets rid of all the air and shrinks the cups to 75% of their original size. It's sort of like when you dive into a swimming pool, and while going down you feel your ears get tight—that is the effect of pressure.



The cups before pressure...



...and the cups after pressure!

Finally, although we've been out to sea for over two weeks, we've seen very little wildlife. We've seen pilot whales, two or three squid, flying fish and some little fish called Ballyhoo that dance on top of the water with a long snout. They look like mini swordfish. The reason we haven't seen much wildlife is that there is very little life in the middle of the ocean. In fact, if you look at the middle of the ocean from space, it almost looks purple because there is no phytoplankton, (green plant material that is the base of the food chain). You'll find life near the coasts or in the North Atlantic because all animals need nutrients to live and you need currents or up welling to move the nutrients around to feed the phytoplankton (plants) which feed the zooplankton (little animals), which feed the fish, which feed the dolphins, which feed the sharks! This is an example of the food chain.

Interview with Chris Churylo – Chief Electronics Technician

An important person on any cruise is the Chief Electronics Technician or Chief ET as



they are called. Their main job is to make sure that all the electronics are working – that means sonar, networks, navigation, radio and all the things that keep the ship going to where it needs to go, and people talking to whom they need to talk. On board the RON BROWN, the Chief ET is Chris Churylo. Chris is multi-talented—not only is he a Chief ET, he's also a Licensed Practical Nurse, an Emergency Medical Technician, a truck driver, a fireman, a pilot, has a real estate license and is a Notary. Chris likes

working on the RON BROWN because he works two months on and gets two months off. While he's at sea and not working, he likes to play chess, learn guitar and work out in the gym. During his off-time he likes to fly his plane, a Cessna 150, explore local places and hang out with his girlfriend of 18 years. Chris, who grew up in Philadelphia now calls a farm in West Virginia his home. During his career he has traveled all over the world, notably to the South Pole and Barrow Alaska during his 20 years of government service. Chris's attitude on board the RON BROWN is contagious. He is a happy spirit, energetic and genuinely likes what he does.

Assignment: In your logs, illustrate the effect of pressure. Step one - Draw your decorated Styrofoam cup at the surface. Step two - draw it on the CTD in a bag ready to go to the bottom of the ocean. Step three - draw it now $\frac{2}{3}$ smaller than when it started.

Personal Log – Kimberly Pratt

Yesterday was a quiet day. We headed back to Marsh Harbor, Bahamas so the science staff had most of the day off with CTD casts in the evening. I got to do some reading about Great White Sharks off the Farallones Islands – outside of San Francisco Bay. One of the main researchers in the book is Peter Pyle, who I sailed with last year on the MCARTHUR II. I've really met some great people being a Teacher at Sea. This trip feels like it is winding down with less than a week to go. The weather is still beautiful. Sorry to hear about all the rain and hail back home. Keep writing I love hearing from you all.

Personal Log – Vince Rosato

Sad news came on three fronts today. First, a crewmember heard by ship's phone of a tragedy in the family and had to be brought to shore to catch a plane back home. If you noticed the ship tracker had us going back and forth from Abaco Island, one of those trips was to bring a crewmate ashore. Second, I heard from my home that a neighbor friend had a stroke and is under observation in the hospital. And third, from my school, a teacher friend is taking the rest of the year off for health reasons. Those things drained my energy. Work doesn't stop whether we are happy or sad, so I continued becoming proficient at salinity analysis. If counting time, however, I spent most of the day replying to your wonderful emails and working on logs. I got to call out on the radio set the depths to the winch driver, and fire the CTD bottles on the late night cast. That boosted my morale with Dallas, the author, and Mick, the father of Dr. Beal. We have formed a bond with Carlos, our CTD team leader, through our tradition of after-shift snack time in the galley.